

PROJECT TITLE : Cigarette and Smoke Analysis

Period Covered : May 1 - May 30, 1980

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#### ANALYTICAL SMOKING:

##### Collective Test ASFC, May 1980, Switzerland (Table 1)

The members of the ASFC Scientific Commission decided to carry out a test with four different kinds of cigarettes in order to determine the smoke yield results obtained by each laboratory, in comparison with those obtained by Romann and Ramuz (independent Swiss laboratories in Zurich and Lausanne), Ref. 1.

These comparative studies should also allow the manufacturers to determine their policy regarding the numbers to be printed on the packs.

A detailed study of the analytical results shows that the laboratories using the smoking machine Filtrona 302 (BAT, Romann and Ramuz) obtain tar values which are systematically lower than those of the other laboratories. Through a statistical study this difference has been found as being significant. It has to be mentioned that the cigarettes analysed during this collective test were taken out of the same sampling.

##### Data from the Official Swiss Laboratory of Dr. Romann (Table 2)

A table was issued, which shows the tar, smoke nicotine, carbon monoxide and nitrogen monoxide values of all PM brands (28 brands) analysed by Dr. Romann's laboratory, compared with the results obtained by QC PME (Ref. 2).

Dr. Romann found in the average:

- 11,5 % lower tar
- 8,3 % lower smoke nicotine
- 7,7 % lower CO
- 14,5 % lower NO

The lower smoke yield obtained by Dr. Romann, in comparison with values obtained by QC PME, is mainly due to the use of the Filtrona 302 smoking machine (8 ports) which gives systematically lower results than the Filtrona 300 smoking machine (20 ports).

##### Comparative tests between TNO - Laurens Belgium - Laurens Switzerland and QC PME (Table 3)

When we analysed in 1979 for the first time the brands ex-Ligget, sold in Switzerland and France, we found in certain brands rather high differences between the actual tar and nicotine values and the ones printed on the packs.

The laboratory of Laurens Belgium, which analysed these cigarettes sold in France and Switzerland, based the values printed on the packs on the actually determined results.

It was decided to carry out a collective test in order to determine the cause for these differences. These collective tests were also made by the Official smoke laboratory in the Netherlands (TNO) and the smoke laboratory of Laurens Switzerland (Ref. 3).

Comments

1. Compared with the results obtained by QC PME, TNO found in the average:

10,5 % lower Tar  
23,6 % lower smoke nicotine

This difference in Tar is explained by the fact that TNO uses Filtrona 302 smoking machines (8 ports). The difference in smoke nicotine will be investigated.

2. Compared with the results obtained by QC PME, Laurens Belgium found in the average:

5,3 % lower Tar  
6,6 % lower smoke nicotine

3. In the average and compared with the Filtrona 300 smoking machine, the Borgwaldt RM 20 CS with central 92 mm filter trap, which is used by Laurens, Belgium, gave a slightly lower tar value (not significant) of about 0.5 mg with a filter cigarette and a significantly lower tar value (about 2 mg) with a cigarette without filter. It is probable that the rotary circular head which moves every two seconds during one second and which causes more ventilation around the cigarette than a fixed head as on the Filtrona 300, explains the difference obtained with filter cigarettes. A study is under way to explain the differences obtained on cigarettes without filter.

Marlboro Long Size 79/F and Marlboro King size 84/F for Italy

The diluted version is produced now by all the production centers, except for the MLK 27 produced in Serrières

	Bologna		Eindh.-Bergen		Munich		Brussels	Serrières
	MLF 01	MLK 01	MLF 08	MLK 07	MLF 10	MLK 10	MLF 22	MLF 24
Dilution %	9	10	9	11	11	13	9	11
DPM (mg/cig)	18,7	17,7	18,1	17,2	18,0	17,4	18,6	17,9
SN (mg/cig)	1,30	1,21	1,11	1,18	1,22	1,20	1,23	1,17
Puff count	9,3	10,0	8,7	9,4	8,4	9,2	8,6	8,7
Tobacco weight	845	874	786	828	771	805	789	773
TA %	1,68	1,74	1,70	1,74	1,78	1,77	1,74	1,66

The DPM values of all these versions are very close to each other.

Product Reports

Product Reports were written on the following new or modified brands:

<u>Brand</u>	<u>Manufacturer</u>	<u>Country of sale</u>
Camel Mild 84/F (new brand)	Reynolds	West Germany
Petterdøe's 84/F (new brand)	Tiedemanns	Norway
Commerce lights 67/F (new brand)	Swedish Tobacco	Sweden
Camel Mild 79/F (new brand)	Reynolds	Switzerland
Marocaine Extra 79/F (new brand)	B.A.T.	Switzerland
Gallaher lights 84/F (Trade Mark Protection)	Gallaher	United Kingdom
Winston lights 84/F (Trade Mark Protection)	Gallaher	United Kingdom

QC FINISHED PRODUCTS

*F. Senehi*  
F. Senehi

REFERENCES:

- 1) Letter dd. 05-07-1980 from C. Jeanneret: Procès verbal de la séance de la Commission Scientifique de l'ASFC du 5 mai 1980 à Fribourg
- 2) Letter dd. 05-27-1980 from F. Senehi
- 3) Letter dd. 05-30-1980 from F. Senehi to Mr. J.B. Boder

04-06-1980 SEF/edk

Brand Printed val. (mg) Manufacturer	CONDENSAT (TAR mg/cig)				NICOTINE (SN mg/cig)			
	Marlboro 16	Mary Long 14	Stella Super 11	Select No. 2 4	Marlboro 1.2	Mary Long 1.0	Stella Super 1.0	Select No. 0.4
FTR	16.0	14.8	11.3	4.1	1.17	1.04	0.88	0.38
Reynolds	16.1	15.5	11.7	3.8	1.06	0.96	0.86	0.33
Rinsoz & Ormond	16.1	14.5	11.9	3.9	1.07	0.90	0.76	0.32
Laurens	16.1	14.9	11.5	4.1	1.11	0.98	0.82	0.29
Burrus	15.9	14.6	11.3	3.8	1.13	0.97	0.88	0.35
BAT	14.8	14.4	11.1	3.4	0.99	0.95	0.78	0.28
Romann	14.7	14.1	10.1	3.6	1.13	1.03	0.82	0.36
Ramuz	15.5	14.2	10.7	3.3	1.12	0.98	0.87	0.30
AVERAGE :	15.7 $\pm$ 0.6	14.6 $\pm$ 0.5	11.2 $\pm$ 0.6	3.8 $\pm$ 0.3	1.10 $\pm$ 0.06	0.98 $\pm$ 0.04	0.83 $\pm$ 0.05	0.33 $\pm$ 0.04
AVER. FILTRONA 302:	15.0 $\pm$ 0.4	14.2 $\pm$ 0.2	10.6 $\pm$ 0.5	3.4 $\pm$ 0.2	1.08 $\pm$ 0.08	0.99 $\pm$ 0.04	0.82 $\pm$ 0.05	0.31 $\pm$ 0.04
AVERAGE OTHERS :	16.0 $\pm$ 0.1	14.9 $\pm$ 0.4	11.5 $\pm$ 0.3	3.9 $\pm$ 0.2	1.11 $\pm$ 0.04	0.97 $\pm$ 0.05	0.84 $\pm$ 0.05	0.33 $\pm$ 0.03
DEVIATION FOR FILTRONA 302: *	- 1.0	- 0.7	- 0.9	- 0.5	( - 0.03 )	( + 0.02 )	( - 0.02 )	( - 0.02 )

NOTE; The analyses were made on a common sampling.

\* Deviation in mg of the Filtrona 302 in comparison with the other smoking machines.

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## COMPARATIVE RESULTS BETWEEN THE OFFICIAL SWISS LABORATORY OF DR. DOMANN AND QC P/E

BRANDS	TAR (mg/cig)			S N (mg/cig)			CO (mg/cig)		NO (mg/cig)	
	DOMANN	QC P/E	PRINTED VALUES	DOMANN	QC P/E	PRINTED VALUES	DOMANN	QC P/E	DOMANN	QC P/E
ARLETTE	13,0	14,5	14	0,70	0,85	0,8	17,8	18,9	0,34	0,35
BASTUS	14,0	16,3	17	0,70	0,92	1,1	14,4	15,7	0,29	0,40
BRUNETTE CARREE / PLATE	17,8/17,7	20,2	23	1,08/1,09	1,25	1,3	13,5/13,9	15,1	0,22/0,21	0,31
BRUNETTE DOUBLE	13,1	15,4	15	0,87	1,03	1,0	14,7	17,1	0,25	0,29
BRUNETTE EXTRA MOU / BOX	5,2/5,3	6,2	7	0,38/0,38	0,46	0,6	9,5/8,9	9,4	0,18/0,16	0,19
BRUNETTE FILTRE	15,5	15,8	16	0,92	1,05	1,1	15,1	17,0	0,27	0,28
CHAMPION	13,7	15,7	15	1,24	1,35	1,4	14,0	13,8	0,11	0,14
DIANA KING SIZE	13,6	14,7	15	0,85	0,92	1,0	17,0	16,4	0,20	0,23
FLINT BOX	6,1	7,6	7	0,41	0,55	0,6	9,0	10,5	0,13	0,15
FLINT KING SIZE	6,0	7,4	7	0,45	0,51	0,6	9,2	10,6	0,14	0,16
FLINT ULTRA	1,0	1,3	1	0,10	0,13	0,1	3,0	4,2	0,06	0,09
MARLBORO BOX	13,8	16,0	16	1,10	1,16	1,2	14,0	16,4	0,21	0,27
MARLBORO 100'S RED BOX	13,3	16,1	17	1,14	1,24	1,2	14,0	15,9	0,24	0,28
MARLBORO KING SIZE	12,9	15,0	16	1,06	1,13	1,2	13,4	15,8	0,22	0,27
MARLBORO GOLD	7,8	8,9	9	0,68	0,74	0,8	10,8	11,3	0,19	0,21
MILLA	15,7	17,8	17	0,88	0,95	0,9	14,5	15,8	0,08	0,10
MS KING SIZE	15,0	15,8	18	1,05	1,07	1,2	16,3	16,2	0,31	0,32
MERCEDES KING SIZE	15,8	17,5	16	0,97	1,01	1,1	18,6	18,4	0,19	0,21
MULTIFILTER 100'S	11,6	13,2	13	0,98	1,00	1,0	12,7	14,4	0,18	0,20
MULTIFILTER KING SIZE	11,0	13,0	12	0,90	0,98	0,9	13,1	15,5	0,17	0,21
MURATTI AMBASSADOR BOX	10,8	12,4	12	0,87	0,91	0,9	11,8	14,6	0,17	0,20
MURATTI 2000	5,1	6,8	7	0,47	0,56	0,6	8,2	9,9	0,10	0,13
MURATTI 2000 EXTRA LONGS BOX	7,4	8,5	9	0,61	0,69	0,8	10,1	10,4	0,12	0,14
MURATTI AMBASSADOR EXTRA MILD K.S.	5,3	5,5	5	0,42	0,43	0,4	10,6	10,0	0,14	0,13
MURATTI AMBASSADOR KING SIZE	11,4	13,2	12	0,87	0,94	0,9	12,8	13,9	0,17	0,19
NORTH POLE	14,2	15,1	14	0,94	0,93	0,9	14,6	14,3	0,20	0,25
PHILIP MORRIS INTERNATIONAL	15,3	17,4	17	1,12	1,16	1,1	17,7	18,1	0,21	0,24
PHILIP MORRIS KING SIZE NF	22,8	23,8	23	1,66	1,64	1,5	13,2	14,4	0,18	0,23
GENERAL AVERAGE	11,73	13,25	13,2	0,837	0,913	0,94	12,99	14,07	0,188	0,220
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The analyses were taken at Onnens on March 19, 1990

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	T A R			Deviation in % *		Smoke Nicotine			Deviation in % *	
	QC PME	L.BE	TNO	L.BE	TNO	QC PME	L. BE	TNO	L. BE	TNO
Caballero 70/NF	22.0	20.6	19.1			1.95	1.55	1.37		
Chesterfield 84/F	15.1	15.2	13.6			1.30	1.17	1.12		
Tivoli Light 84/F	5.7	5.9	5.7			0.44	0.36	0.33		
$\bar{X}$	14.3	13.9	12.8	- 2.8	- 10.5	1.23	1.03	0.94	-16.3**	-23.6

## COMPARATIVE TESTS BETWEEN LAURENS CH - LAURENS BE - QC PME

	T A R			Deviation in % *		Smoke Nicotine			Deviation in % *	
	QC PME	L.BE	L.CH	L.BE	L.CH	QC PME	L.BE	L.CH	L.BE	L.CH
Chesterfield 70/NF	22.6	20.5	21.4			1.73	1.73	1.69		
Chesterfield 84/F	17.7	16.8	16.7			1.36	1.34	1.37		
job bleu 80/F	14.4	13.0	13.9			1.00	0.91	0.94		
$\bar{X}$	18.2	16.8	17.3	-7.7	-5.0	1.36	1.33	1.33	-2.2	-2.2

\* = Deviation in % in comparison to QC PME  
 TNO = Official smoke laboratory in the Netherlands  
 L.BE = Laurens Belgium  
 L.CH = Laurens Switzerland

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QC PME : Filtrona 300 smoking machine  
 TNO : Filtrona 302 smoking machine  
 L.BE and : Borgwaldt smoking machine RM 20 CS  
 L.CH : with central 92 mm filter trap  
 \*\* : 11 % , not considering the Caballero 70/NF

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